

Matrix for Calfed

CALFED Alternatives evaluation for striped bass -page 1

Diversion Effects on Striped Bass-Existing conditions assumes Delta Accord

Effects	wt.	Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep	sum	comments
Entrainment	10	-1	-1	-2	-3	-3	-4	-2	-1		June to Aug more predation on juveniles.
Predation mortality-CCF + return											
Entrainment losses											
Handling mortality											
Food supply	3	0	0	0	0	-1	-1	-1	0		Diversion effects on zooplankton appear small
Shallow/inshore habitat- offsetting div.	1	0	0	0	0	0	0	0	0		
Water quality (toxics)	1	0	0	0	0	-1	0	0	0		
WQ (salinity) affecting SJR spawning	1	0	0	-1	-1	0	0	0	0		
Agricultural diversions	3	0	0	-1	-2	-2	-1	0	0		Diversions vary with water year type.
Hydrodynamics-Sacramento R. trans	3	0	0	-1	-1	-1	0	0	0		
Hydrodynamics-San Joaquin flow	3	0	0	-1	-1	-2	-2	-2	-1		Diversions vary with water year type.
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	-1	-1	-1	0	-1	0		
Unweighted total		-1	-1	-7	-9	-11	-8	-6	-2	-45	
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv		

Diversion Effects on Striped Bass- No Action

Effects		Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep		comments
Entrainment	10	-1	-2	-2	-3	-3	-4	-2	-1		shaded cells indicate change from existing conditions
Predation mortality-CCF											
Entrainment losses											
Handling mortality											
Food supply	3	0	0	0	0	-1	-1	-1	0		
Shallow/ nearshore habitat	1	0	0	0	0	0	0	0	0		
Water quality (toxics)	1	0	0	0	0	-1	0	0	0		
WQ (salinity) affecting SJR spawning	1	0	0	-1	-1	0	0	0	0		
Agricultural diversions	3	0	0	-1	-2	-2	-1	0	0		
Hydrodynamics-Sacramento R. trans	3	0	0	-1	-1	-1	0	0	0		
Hydrodynamics-San Joaquin flow	3	0	0	-1	-1	-2	-2	-2	-1		
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	-1	-1	-1	0	-1	0		
Unweighted total		-1	-2	-7	-9	-11	-8	-6	-2	-46	
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv		

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CALFED Alternatives evaluation for striped bass -page 2

Diversion Effects on Striped Bass-common programs

Effects	wt.	Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep	comments
Entrainment	10	0	0	0	0	0	0	0	0	
Predation mortality-CCF										
Entrainment losses										
Handling mortality										
Food supply	3	0	0	0	0	0	0	0	0	
Shallow/inshore habitat- offsetting div.	1	0	0	0	0	0	0	0	0	difficult to assess for striped bass/ need more info.
Water quality (toxics and nutrients)	-1	0	0	0	0	0	0	0	0	water quality for drinking water not necessarily good for fish
WQ (salinity) affecting SJR spawning	1	0	0	0	0	0	0	0	0	
Agricultural diversions	3	0	0	0	0	0	0	0	0	
Hydrodynamics-Sacramento R. trans	3	0	0	0	0	0	0	0	0	
Hydrodynamics-San Joaquin flow	3	0	0	0	0	0	0	0	0	
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	0	0	0	0	0	0	
Unweighted total		0	0	0	0	0	0	0	0	
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv	0

Diversion Effects on Striped Bass- Alternative 1

Effects		Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep	comments
Entrainment	10	-1	-1	-2	-3				-1	shaded cells indicate change from existing conditions
Predation mortality-CCF										
Entrainment losses										
Handling mortality										
Food supply	3	0	0	0	0	-1	-1	-1	0	
Shallow/ nearshore habitat	1	0	0	0	0	0	0	0	0	
Water quality (toxics)	1	0	0	0	0	-1	0	0	0	
WQ (salinity) affecting SJR spawning	1	0	0	-1	-1	0	0	0	0	
Agricultural diversions	3	0	0	-1	-2	-2	-1	0	0	
Hydrodynamics-Sacramento R. trans	3	0	0	-1	-1	-1	0	0	0	
Hydrodynamics-San Joaquin flow	3	0	0	-1	-1	-2	-2	0	0	
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	-1	-1	-1	0	-1	0	
Unweighted total		-1	-1	-7	-9	-10	-7	-3	-1	-39
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv	

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Diversion Effects on Striped Bass-Alternative 2

Effects	wt.	Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep		comments
Entrainment	10	-1	-1	-2	-2	-2	-4	-1	-1		Losses due to Mokelumne spawning location
Predation mortality-CCF & release											shaded cells indicate change from existing conditions
Entrainment losses											
Handling mortality											
Food supply	3	0	0	0	0	-1	-1	-1	0		
Shallow/inshore habitat- offsetting div.	1	0	0	0	0	0	0	0	0		No effect on striped bass predicted. High uncertainty.
Water quality (toxics)	1	0	0	0	0	-1	0	0	0		
WQ (salinity) affecting SJR spawning	1	0	0	-1	-1	0	0	0	0		
Agricultural diversions	3	0	0	-1	-2	-2	-1	0	0		
Hydrodynamics-Sacramento R. trans	3	0	0	-2	-2	-3	0	0	0		
Hydrodynamics-San Joaquin flow	3	0	0	-2	-2	-3	-1	-1	0		Positive downstream flows April-July; Lower flows in July-Aug
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	-3	-3	-3	0	-1	0		adults spawning in Mokelumne River
Unweighted total		-1	-1	-8	-13	-11	-7	-4	-1	-46	
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv		adults affected by screen barrier to spawning areas

Diversion Effects on Striped Bass- Alternative 3.

Effects		Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep		comments
Entrainment	10	-2	-2	-2	-3	-4	-3	-2			shaded cells indicate change from existing conditions
Predation mortality-CCF & release											
Entrainment losses											
Handling mortality											
Food supply	3	0	0	0	0	-1	-1	-1	0		
Shallow/ nearshore habitat	1	0	0	0	0	0	0	0	0		
Water quality (toxics)	1	0	0	0	0	-1	0	0	0		
WQ (salinity) affecting SJR spawning	1	0	0	-1	-1	0	0	0	0		
Agricultural diversions	3	0	0	-1	-2	-2	-1	0	0		
Hydrodynamics-Sacramento R. trans	3	0	0	-2	-2	-3	0	0	0		
Hydrodynamics-San Joaquin flow	3	0	0	-2	-2	-3	-1	-1	0		
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	-3	-3	-3	0	0	0		
Unweighted total		2	2	-2	-8	-6	3	3	2	-4	
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv		

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Diversion Effects on Striped Bass - Restoration conditions

Effects	wt.	Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep	comments
Entrainment	10	2	2	5	5	5	5	4	3	June to Aug more predation on juveniles.
Predation mortality-CCF + return										shaded cells indicate change from existing conditions
Entrainment losses										
Handling mortality										
Food supply	3	1	0	2	2	2	2	2	1	
Shallow/inshore habitat- offsetting div.	1	0	0	0	0	0	0	0	0	
Water quality (toxics)	1									
WQ (salinity) affecting SJR spawning	1	0	0	1	1	1	0	0	0	
Agricultural diversions	3	0	0	1	2	2	0	0	0	
Hydrodynamics-Sacramento R. trans	3	0	0	3	3	3	0	0	0	
Hydrodynamics-San Joaquin flow	3	0	0	2	2	2	2	2	0	
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	1	1	1	0	0	0	
Unweighted total		4	3	14	13	13	9	9	5	70
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv	

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Matrix for Calfed

CALFED Alternatives evaluation for striped bass -page 5--Weighted Results

Diversion Effects on Striped Bass-Existing conditions assumes Delta Accord

Effects	wt.	Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep	sum	comments
Entrainment	10	-10	-10	-20	-30	-30	-40	-20	-10	-170	June to Aug more predation on juveniles.
Predation mortality-CCF + return											
Entrainment losses											
Handling mortality											
Food supply	3	0	0	0	0	-3	-3	-3	0	-9	Diversion effects on zooplankton appear small
Shallow/inshore habitat- offsetting div.	1	0	0	0	0	0	0	0	0	0	
Water quality (toxics)	1	0	0	0	0	-1	0	0	0	-1	
WQ (salinity) affecting SJR spawning	1	0	0	-1	-1	0	0	0	0	-2	
Agricultural diversions	3	0	0	-3	-6	-6	-3	0	0	-18	Diversions vary with water year type.
Hydrodynamics-Sacramento R. trans	3	0	0	-3	-3	-3	0	0	0	-9	
Hydrodynamics-San Joaquin flow	3	0	0	-3	-3	-6	-6	-6	-3	-27	Diversions vary with water year type.
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	-3	-3	-3	0	-3	0	-12	
Weighted total		-10	-10	-33	-46	-52	-52	-32	-13	-248	
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv		

Diversion Effects on Striped Bass- No Action--Weighted Results

Effects		Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep	sum	comments
Entrainment	10	-10	-20	-20	-30	-30	-40	-20	-10	-180	shaded cells indicate change from existing conditions
Predation mortality-CCF											
Entrainment losses											
Handling mortality											
Food supply	3	0	0	0	0	-3	-3	-3	0	-9	
Shallow/ nearshore habitat	1	0	0	0	0	0	0	0	0	0	
Water quality (toxics)	1	0	0	0	0	-1	0	0	0	-1	
WQ (salinity) affecting SJR spawning	1	0	0	-1	-1	0	0	0	0	-2	
Agricultural diversions	3	0	0	-3	-6	-6	-3	0	0	-18	
Hydrodynamics-Sacramento R. trans	3	0	0	-3	-3	-3	0	0	0	-9	
Hydrodynamics-San Joaquin flow	3	0	0	-3	-3	-6	-6	-6	-3	-27	
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	-3	-3	-3	0	-3	0	-12	
Weighted total		-10	-20	-33	-46	-52	-52	-32	-13	-258	
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv		

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Diversion Effects on Striped Bass-common programs --Weighted Results

Effects	wt.	Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep	sum	comments	
Entrainment	10	0	0	0	0	0	0	0	0	0	0	shaded cells indicate change from existing conditions
Predation mortality-CCF												
Entrainment losses												
Handling mortality												
Food supply	3	0	0	0	0	0	0	0	0	0		
Shallow/inshore habitat- offsetting div.	1	0	0	0	0	0	0	0	0	0	0	difficult to assess for striped bass/ need more info.
Water quality (toxics and nutrients)	1	0	0	0	0	0	0	0	0	0	0	water quality for drinking water not necessarily good for fish
WQ (salinity) affecting SJR spawning	1	0	0	0	0	0	0	0	0	0	0	
Agricultural diversions	3	0	0	0	0	0	0	0	0	0	0	
Hydrodynamics-Sacramento R. trans	3	0	0	0	0	0	0	0	0	0	0	
Hydrodynamics-San Joaquin flow	3	0	0	0	0	0	0	0	0	0	0	
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	0	0	0	0	0	0	0	0	
Weighted total		0	0	0	0	0	0	0	0	0	0	
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv			

Diversion Effects on Striped Bass- Alternative 1--Weighted Results

Effects		Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep	sum	comments
Entrainment	10	-10	-10	-20	-30	-20	-30	-10	-10	-140	shaded cells indicate change from existing conditions
Predation mortality-CCF											
Entrainment losses											
Handling mortality											
Food supply	3	0	0	0	0	-3	-3	-3	0	-9	
Shallow/ nearshore habitat	1	0	0	0	0	0	0	0	0	0	
Water quality (toxics)	1	0	0	0	0	-1	0	0	0	-1	
WQ (salinity) affecting SJR spawning	1	0	0	-1	-1	0	0	0	0	-2	
Agricultural diversions	3	0	0	-3	-6	-6	-3	0	0	-18	
Hydrodynamics-Sacramento R. trans	3	0	0	-3	-3	-3	0	0	0	-9	
Hydrodynamics-San Joaquin flow	3	0	0	-3	-3	-6	-6	0	0	-18	
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	-3	-3	-3	0	-3	0	-12	
Weighted total		-10	-10	-33	-46	-42	-42	-16	-10	-209	
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv		

D-055670

Diversion Effects on Striped Bass-Alternative 2 -Weighted Results

Effects	wt.	Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep	sum	comments
Entrainment	10	-10	-10	-30	-40	-20	-20	-10	-10	-170	June to Aug more predation on juveniles.
Predation mortality-CCF & release											shaded cells indicate change from existing conditions
Entrainment losses											
Handling mortality											
Food supply	3	0	0	0	0	-3	-3	-3	0	-9	
Shallow/inshore habitat- offsetting div.	1	0	0	0	0	0	0	0	0	0	No effect on striped bass predicted. High uncertainty.
Water quality (toxics)	1	0	0	0	0	-1	0	0	0	-1	
WQ (salinity) affecting SJR spawning	1	0	0	-1	-1	0	0	0	0	-2	
Agricultural diversions	3	0	0	-3	-6	-6	-3	0	0	-18	
Hydrodynamics-Sacramento R. trans	3	0	0	-6	-12	-9	0	0	0	-27	
Hydrodynamics-San Joaquin flow	3	0	0	-6	-3	-3	-3	-3	0	6	Positive downstream flows April-July;+K22 Lower flows in July-
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	-9	-9	-9	0	-3	0	-30	adults spawning in Mokelumne River
Weighted total		-10	-10	-43	-65	-45	-49	-19	-10	-251	
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv		adults affected by screen barrier to spawning areas

Diversion Effects on Striped Bass- Alternative 3 -Weighted Results

Effects		Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep	sum	comments
Entrainment	10	20	20	10	30	10	40	30	20	80	shaded cells indicate change from existing conditions
Predation mortality-CCF & release											
Entrainment losses											
Handling mortality											
Food supply	3	0	0	0	0	-3	-3	-3	0	-9	
Shallow/ nearshore habitat	1	0	0	0	0	0	0	0	0	0	
Water quality (toxics)	1	0	0	0	0	-1	0	0	0	-1	
WQ (salinity) affecting SJR spawning	1	0	0	-1	-1	0	0	0	0	-2	
Agricultural diversions	3	0	0	-3	-6	-6	-3	0	0	-18	
Hydrodynamics-Sacramento R. trans	3	0	0	-6	-12	-9	0	0	0	-27	
Hydrodynamics-San Joaquin flow	3	0	0	-6	-3	-3	-3	-3	0	18	
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	-9	-9	-9	0	0	0	9	
Weighted total		20	20	-11	-43	-23	37	30	20	50	
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv		

D-055671

CALFED Alternatives evaluation for striped bass -page 8.

Diversion Effects on Striped Bass - Restoration conditions --Weighted Results

Effects	wt.	Oct-Nov	Dec- Mar	Apr	May	June	July	Aug	Sep	sum	comments
Entrainment	10	20	20	50	50	50	50	40	30	310	June to Aug more predation on juveniles.
Predation mortality-CCF + return											shaded cells indicate change from existing conditions
Entrainment losses											
Handling mortality											
Food supply	3	3	0	6	6	6	6	6	3	36	
Shallow/inshore habitat- offsetting div.	1	0	0	0	0	0	0	0	0	0	
Water quality (toxics)	1									8	
WQ (salinity) affecting SJR spawning	1	0	0	1	1	1	0	0	0	3	
Agricultural diversions	3	0	0	3	6	6	3	0	0	-18	
Hydrodynamics-Sacramento R. trans	3	0	0	9	9	9	0	0	0	27	
Hydrodynamics-San Joaquin flow	3	0	0	6	6	6	6	6	0	30	
Hydrodynamic- Xdel fl- G. sl and 3 mi.	3	0	0	3	3	3	0	0	0	9	
Weighted total		24	21	73	70	70	60	53	34	405	
life stage		juv	juv	e & l	e & l	e & l, juv	l & juv	juv	juv		

D-055672